

# TROPICAL STORM FAYE (07)

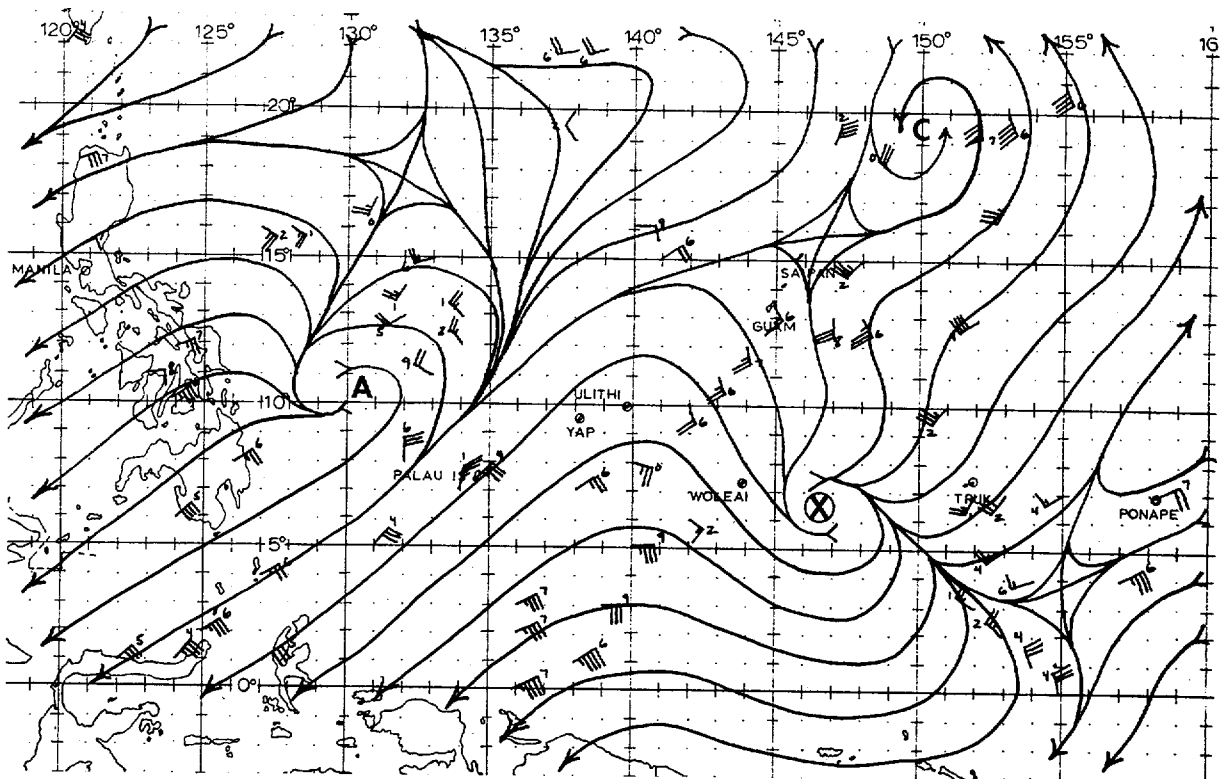


FIGURE 3-07-1. Upper-level streamline analysis at 020000Z July 1979.

Tropical Storm Faye proved a most interesting case study, not because it developed into an intense tropical cyclone, but because typhoon intensity was not attained as forecast.

TD 07 was first analyzed as a closed surface circulation about 800 nm (1482 km) southeast of Guam on the 28th of June. The associated convective activity remained disorganized until 011200Z July. At that time a TUTT cell developed north of the system; thereby providing an excellent upper-level outflow channel to the northeast (Fig. 3-07-1). The wind data plotted in figures 3-07-1, -3 and -5 are a combination of RAOBS, AIREPS and satellite-derived winds for the 250 mb to 150 mb levels.

Diffidence over TD 07 was extensive and well-defined. The satellite signature also showed improved outflow (Fig. 3-07-2), and further intensification was expected.

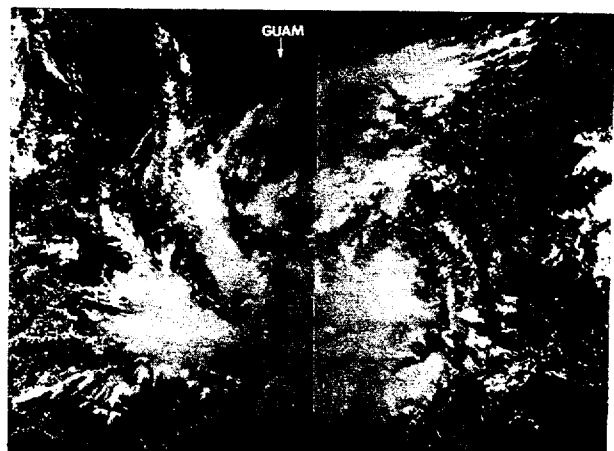


FIGURE 3-07-2. The tropical depression that was to become TS Faye, 02 July 1979, 0022Z. (DMSP imagery)

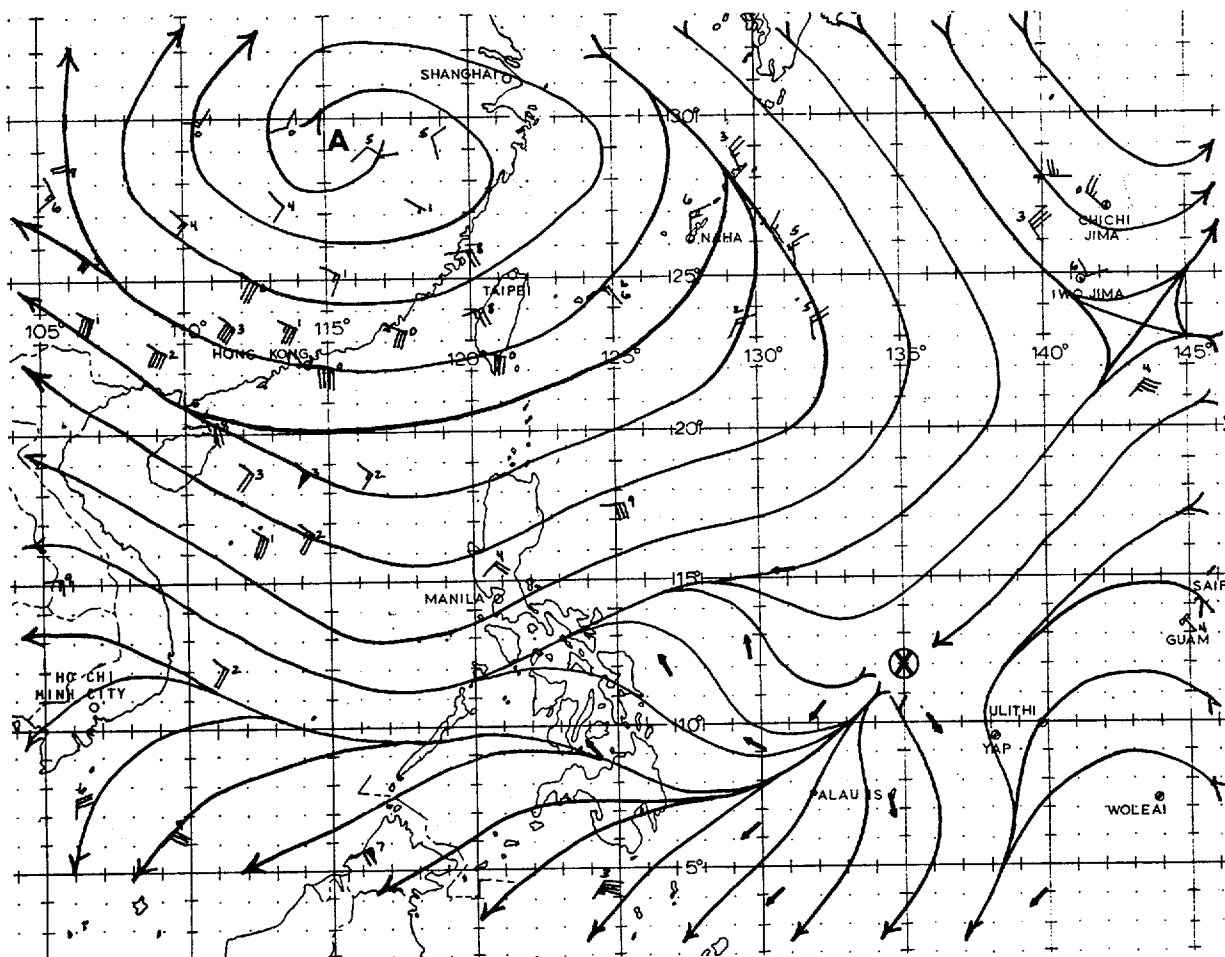


FIGURE 3-07-3. Upper-level streamline analysis at 051200Z July 1979.

The flow pattern over the depression (TD 07) remained favorable for development for the next two days and tropical storm intensity was reached by 031800Z. Continued intensification was still anticipated with typhoon strength forecast within 18 hours.

Instead of intensification, however, Faye weakened. Post-analysis shows that Faye's weakening, and subsequent dissipation, was linked to a radical change in the upper-level flow pattern. Whereas figure 3-07-1 shows a tropical cyclone in excellent position for intensification, figure 3-07-3 shows just the opposite. By 051200Z, a large upper-level anticyclone over China was beginning to build southeastward into the western Pacific toward Faye. Faye's outflow channel to the north became restricted and her low-level circulation center became exposed (Fig. 3-07-4). The mid- to upper-level centers and the associated convection were sheared off to the southwest by increased northeasterly winds at the upper-levels.

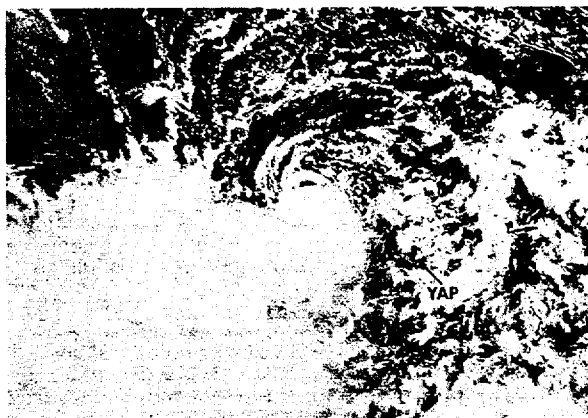


FIGURE 3-07-4. TD 07 (FAYE), 05 July 1979, 1202Z. Strong upper-level northeasterlies have begun to shear off the convection to the southwest. (DMSP imagery, Moonlight Visual)

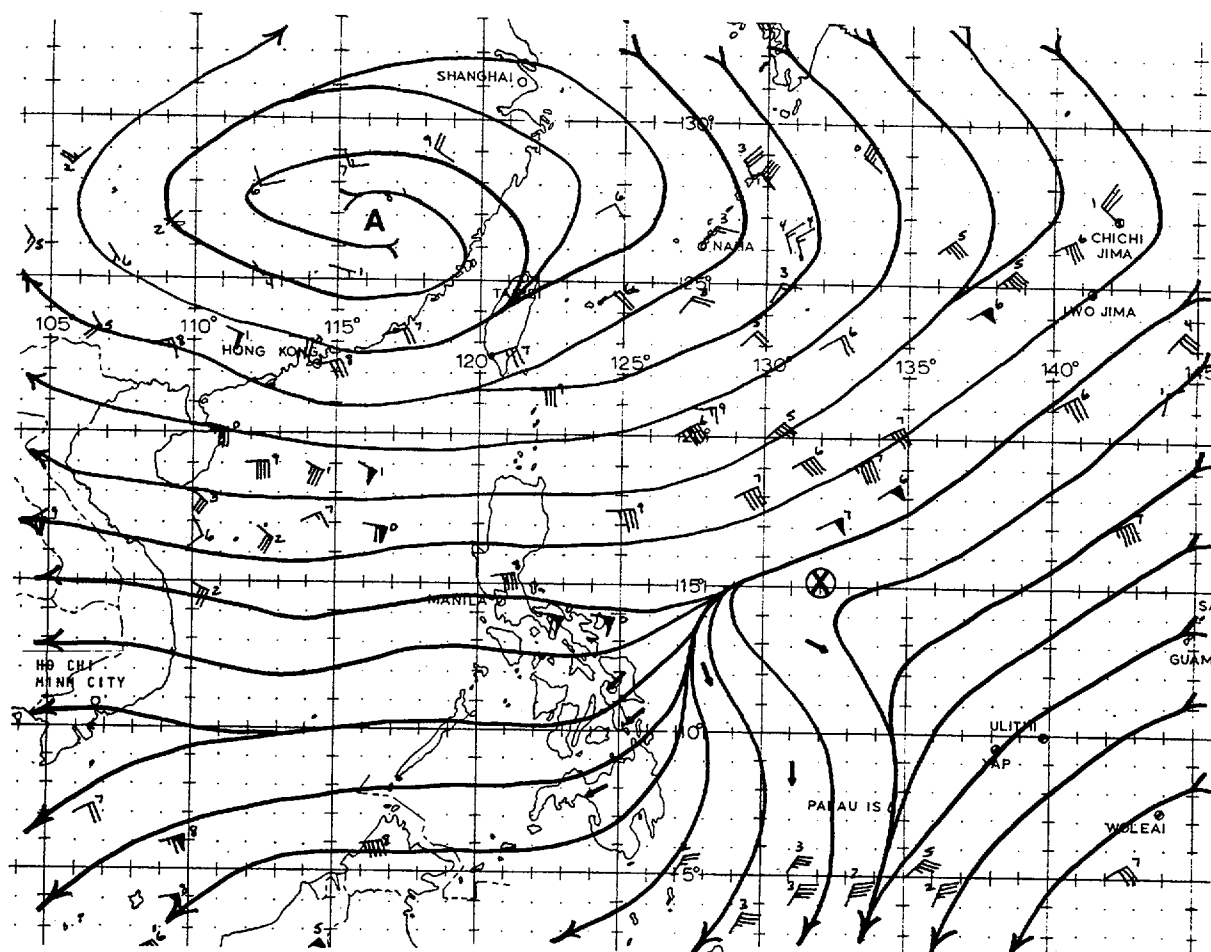


FIGURE 3-07-5. Upper-level streamline analysis at 061200Z July 1979.

Displacement between surface and upper-level centers was observed often during the 1979 season (e.g., see discussions on Hope, Irving, Ellis). Development is usually arrested in this situation, until the system becomes aligned in the vertical. In the case of TS Faye, the upper-level pattern failed to improve. Figure 3-07-5 shows that by 061200Z the upper-level ridge had intruded as far east as Guam and that northeast winds aloft had increased to 50 kt (26 m/sec). At that time, Faye's low-level circulation was fully exposed (Fig. 3-07-6).

This exposed low-level circulation meandered northwestward for two days and eventually dissipated northeast of Luzon.

The short history of Tropical Storm Faye is an excellent example of premature dissipation induced by strong vertical wind shear.

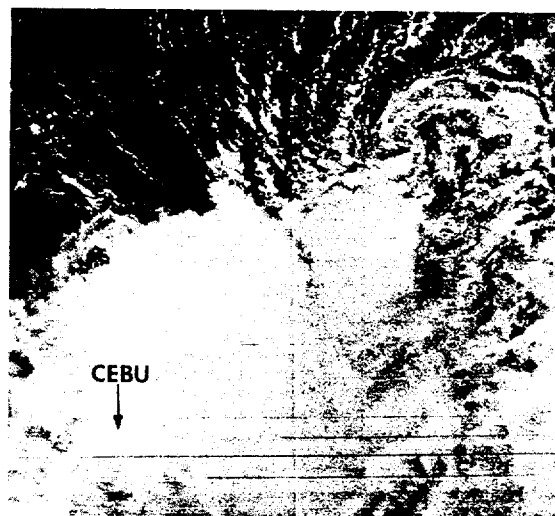


FIGURE 3-07-6. TD 07 (FAVE) is now a fully exposed low-level circulation, 06 July 1979, 1518Z. (DMSP imagery, Moonlight Visual)